CLAIMS

1. A method of performing power save operation in a wireless local area network (WLAN) by a mobile station while performing voice communications, comprising:

admitting a reserved traffic stream at an access point, including establishing a reserved buffer at the access point for buffering data corresponding to the reserved traffic stream to be transmitted to the mobile station;

waking up a WLAN subsystem of the mobile station from a low power state;

transmitting a polling frame to the access point over the WLAN channel, the polling frame identifying the reserved traffic stream and including an aggregation indicator;

in response to transmitting the polling frame, receiving an aggregate response at the mobile station over the WLAN channel, wherein the aggregate response includes at least one frame of data from an aggregate buffer of the access point, the aggregate buffer for buffering both unreserved and reserved data for the mobile station, and wherein receiving the aggregate response continues until the aggregate buffer is empty or a service time period expires; and

upon receiving the aggregate response, setting the WLAN subsystem into the low power state.

2. A method of performing power save operation as defined by claim 1, wherein the aggregate response is transmitted in response to aggregate bit in the polling frame.

3. A method of performing power save operation as defined by claim 1, further comprising receiving an acknowledgement frame at the mobile station from the access point over the WLAN channel in response to transmitting the polling frame.

4. A method of performing power save operation as defined by claim 1, further comprising transmitting an acknowledgement frame from the mobile station to the access point over the WLAN channel in response to receiving the at least one response frame.

5. A method of performing power save operation as defined by claim 1, wherein:

receiving the aggregate response includes receiving a header of a first frame of the aggregate response having a MORE_DATA bit set to indicate a second response frame will be transmitted subsequently;

the method further comprising receiving a second response frame at the mobile station.

6. A method of performing power save operation as defined by claim 1, wherein transmitting the polling frame comprises transmitting a null frame.

7. A method of performing power save operation as defined by claim 6, wherein transmitting the null frame is performed upon expiration of a window timer initiated upon the beginning of a service interval, the service interval

defining a real time duration of a voice frame, the window timer having a duration less than the service interval.

8. A method of performing power save operation as defined by claim 1, further comprising acquiring the WLAN channel after waking up the WLAN subsystem, performed by contending for the WLAN channel.

9. A method of performing power save operation as defined by claim 8, wherein contending for the WLAN channel is performed by carrier sensing.

10. A method of facilitating power save operation by an access point in a wireless local area network (WLAN) by a mobile station while performing voice communications, comprising:

admitting a reserved traffic stream at the access point, including establishing a reserved buffer at the access point for buffering data corresponding to the reserved traffic stream to be transmitted to the mobile station, the reserved buffer and an unreserved buffer forming an aggregate buffer at the access point wherein unreserved data is buffered in the unreserved buffer;

receiving a polling frame at the access point over the WLAN channel from the mobile station, the polling frame identifying the reserved traffic stream;

checking the aggregate buffer for buffered data to be sent to the mobile station; and

transmitting an aggregate response to the mobile station over the WLAN channel, the aggregate response being transmitted by the access point and including data in the aggregate buffer, the transmitting continuing until the aggregate buffer is empty or until a service time period is reached.

11. A method of facilitating power save operation as defined by claim 10, where transmitting the aggregate response is performed in response to the polling frame containing an aggregate bit indicating a desire to use an aggregate response mode.

12. A method of facilitating power save operation as defined by claim 10, further comprising transmitting an acknowledgement frame to the mobile station

from the access point over the WLAN channel in response to receiving the polling frame.

13. A method of facilitating power save operation as defined by claim 10, further comprising receiving an acknowledgement frame from the mobile station at the access point over the WLAN channel in response to transmitting the response frame.

14. A method of facilitating power save operation as defined by claim 10, wherein:

transmitting the aggregate response includes transmitting a header of a first response frame having a MORE_DATA bit set to indicate a second response frame will be transmitted subsequently;

the method further comprising transmitting a second response frame to the mobile station.

15. A method of facilitating power save operation as defined by claim 10, wherein receiving the polling frame comprises receiving a null frame.

16. A method of facilitating power save operation as defined by claim 10, wherein transmitting the response frame comprises transmitting a null frame if there is no data in the aggregate buffer.

17. A method of facilitating power save operation as defined by claim 10, further comprising acquiring the WLAN channel in response to receiving the polling frame, performed by contending for the WLAN channel.

18. A method of facilitating power save operation as defined by claim 17, wherein contending for the WLAN channel is performed by carrier sensing.

19. A method of performing power save operation is a wireless local area network (WLAN) having at least one mobile station and at least one access point, the method comprising:

admitting a reserved traffic stream at the access point, including establishing a reserved buffer at the access point for buffering data corresponding to the reserved traffic stream to be transmitted to the mobile station, the reserved buffer and an unreserved buffer forming an aggregate buffer at the access point wherein unreserved data is buffered in the unreserved buffer;

placing a WLAN subsystem of the mobile station in a low power state;

waking up the WLAN subsystem of the mobile station from a low power state in response to the occurrence of a service interval timer event, the service interval timer for timing a service interval, the service interval defining a real time duration of a voice frame;

acquiring a WLAN channel between the mobile station and the access point, performed by the mobile station after waking up the WLAN subsystem from the low power state;

transmitting a polling frame over the WLAN channel from the mobile station upon acquiring the WLAN channel, the polling frame identifying the reserved traffic stream;

acquiring the WLAN channel, performed by the access point after checking the reserved buffer;

transmitting an aggregate response to the mobile station over the WLAN channel, the aggregate response being transmitted by the access point and including data in the aggregate buffer, the transmitting continuing until the aggregate buffer is empty or until a service time period is reached; and

upon receiving the response frame at the mobile station, setting the WLAN subsystem into the low power state.

20. A method of performing power save operation as defined by claim 19, further comprising transmitting an acknowledgement frame to the mobile station from the access point over the WLAN channel in response to transmitting the polling frame.

21. A method of performing power save operation as defined by claim 19, further comprising transmitting an acknowledgement frame from the mobile station to the access point over the WLAN channel in response to receiving the response frame.

22. A method of performing power save operation as defined by claim 19, wherein transmitting the polling frame comprises transmitting a null frame.

23. A method of performing power save operation as defined by claim 22, wherein transmitting the null frame is performed upon expiration of a window timer initiated upon the beginning of the service interval, the window timer having a duration less than the service interval.

24. A method of performing power save operation as defined by claim 19, wherein transmitting the polling frame comprises transmitting a frame of voice data, the voice data provided to the WLAN subsystem by a voice processing subsystem of the mobile station.